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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/721,550	11/22/2000	Norbert Reich	510015-234	3451

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GREENBERG TRAURIG LLP
2450 COLORADO AVENUE, SUITE 400E
SANTA MONICA, CA 90404

EXAMINER	
FORMAN, BETTY J	

ART UNIT	PAPER NUMBER
1634	

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Supplemental Notice of Allowability	Application No. 09/721,550	Applicant(s) REICH, NORBERT	
	Examiner BJ Forman	Art Unit 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *examiner review and Interview with Applicant's representative*.

2. ☒ The allowed claim(s) is/are *51-55,57-63,65 and 69-74*.

3. ☒ The drawings filed on *22 November 2000* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *0704* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

BJ Forman
Primary Examiner
Art Unit: 1634

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Claude Nassif on 27 July 2004.

Cancel Claims 41-48(41-50), 54(56), 61(64) and 63-65(66-68). The numbers in parenthesis represents corrected numbers.

In an interview with Applicant's representative, Claude Nassif, amendments to the claims were discussed. An interview summary record of the interview is included with the action. The examiner contacted Mr. Nassif because following a review of the allowed claims, the examiner concluded that Claims 41-49, 54, 61 and 63-65 were not supported by the specification, however Applicant reserves the right to argue that there is in fact support for such claims in related or continuing applications. Mr. Nassif disagreed with the examiner's conclusion, but agreed to cancel the claims thereby allowing the remaining claims to proceed to issue. Mr. Nassif stated that the claims are canceled without prejudice reserving the right to further prosecute the claims in a continuation.

It was noted during the interview that the claim set includes misnumbered claims. The claims are renumber according to 37 C.F.R. 1.126 (see MPEP 608.01 (j) and 608.01 (n) IV).

Replace all pending claims with the following:

(51) ~~49~~. (New) A method for quantifying the amount of a target molecule in solution comprising the steps of:

a. incorporating one or more fluorescing nucleotide analogs into nucleotide probes to provide fluorescing nucleotide probes;

b. providing a first substrate having a surface area;

c. affixing a known number of said fluorescing nucleotide probes onto the substrate;

d. detecting a first level of fluorescence from said fluorescing nucleotide probes on the substrate;

e. contacting said first substrate with a sample solution comprising unlabeled target nucleotide sequences;

f. providing sufficient conditions and time for unlabeled target molecules to selectively hybridize with fluorescing nucleotide probes on said substrate wherein hybridization of an unlabeled target molecule and an fluorescing nucleotide probe quenches fluorescence from said fluorescing nucleotide probe;

g. removing the first substrate and detecting a second level of fluorescence from said fluorescing nucleotide probes after hybridization;

h. repeating steps a. through g with subsequent substrates, having surface areas comprising known numbers of fluorescing nucleotide probes until all target molecules are hybridized and no longer quench said fluorescing nucleotide probes; and

i. quantifying the amount of target molecule in the sample solution by adding the known number of fluorescing nucleotide probes present on the first substrate and subsequent substrates contacted with and quenched by the unlabeled target molecule whereby the amount of the target molecule is quantified.

(52) ~~50~~. (New) The method of claim ~~49~~ 51, wherein said fluorescing nucleotide probes are comprised of native and nonnative nucleotides.

(53) ~~51~~. (New)The method of claim ~~49~~ 51, wherein the fluorescing nucleotide analogs are nucleotide analogs, including 2-amino purine for adenosine or guanine; ribonucleoside or 2,6-diamino ribonucleoside, formycin A, formycin B, oxyformycin B, toyocamycin, sangivamycin, pseudoouridine, showdomycin, minimycin, pyrazomycin, 5-amino-formycin A, 5-amino-formycin B or 5-oxo-formycin A for adenosine; 4-amino-pyrazolo [3,4d] pyrimidine, 4,6-diamino-pyrazolo [3,4d] pyrimidine, 4-oxo-pyrazolo [3,4d] pyrimidine; 4-oxo-6-amino-pyrazolo [3,4d] pyrimidine, 4,6-dioxo-pyrazolo [3,4d] pyrimidine, pyrazolo [3,4d] pyrimidine, 6-amino-pyrazolo [3,4d] pyrimidine or 6-oxo-pyrazolo [3,4d] pyrimidine for cytosine or thymidine.

(54) ~~52~~. (New)The method of claim ~~49~~ 51, wherein said one or more fluorescing nucleotide analogs fluoresces at a wavelength of about 300 nm to about 700 nm.

(55) ~~53~~. (New)The method of claim ~~49~~ 51, wherein said fluorescing nucleotide probes are further comprised of amino acids.

(57) ~~55~~. (New)The method of claim ~~49~~ 51, wherein said surface area has from about 100 to about 10,000 different fluorescing nucleotide probe molecules.

(58) ~~56~~. (New)The method of claim ~~49~~ 51, wherein the substrate is a bead.

(59) ~~57~~. (New) The method of claim ~~56~~ 58, wherein said bead size ranges from about 10 microns to about 20 microns.

(60) ~~57~~. (New)The method of claim ~~56~~ 58, wherein the bead is formed of a ferromagnetic metal core and a polymeric coating.

(61) ~~58~~. (New)The method of claim ~~56~~ 58having from about 100 to about 1,000 labeled fluorescing nucleotide probe molecules attached to the surface area of the bead.

(62) ~~59~~. (New)The method for quantifying the amount of a target molecule in a sample solution comprising the steps of:

a. incorporating a nucleotide analog including 2-auminopurine into nucleotide probes to provide fluorescing nucleotide probes;

b. affixing a known number of said the fluorescing probes onto a substrate;

c. detecting a first level of fluorescence from said fluorescing nucleotide probes on the substrate;

d. contacting said substrate with said sample solution containing unlabeled target molecules;

e. providing sufficient conditions and time for unlabeled target molecules in said solution to selectively pair and hybridize with said fluorescing nucleotide probes affixed on said substrate wherein hybridization of an unlabeled target molecule and fluorescing probe quenches fluorescence of the nucleotide probes;

f. removing said substrate from the solution and detecting a second level of fluorescence from the fluorescing nucleotide probes on the substrate;

g. comparing said first and second level of fluorescence;

h. repeating steps d. though g. by re-contacting said sample solution with said substrate or additional substrates having a known number of fluorescing nucleotide probes until target molecules no longer quench the fluorescence from said fluorescing probes; and

i. quantifying the amount of target molecules by determining the number of quenched fluorescing probes.

(63) ~~60~~. (New)The method of claim ~~59~~ 62, wherein said fluorescing nucleotide probes are comprised of native and nonnative nucleotides.

(65) ~~62~~. (New)The method of claim ~~59~~ 62, wherein the fluorescing nucleotide probe molecules are comprised of amino acids.

(69) ~~66~~ .(New)The method of claim ~~59~~ 62, wherein the substrate is a bead.

(70) ~~67~~. (New)The method of claim ~~66~~-69, wherein said bead size ranges from about 10 microns to about 20 microns.

(71) ~~68~~. (New)The method of claim ~~66~~-69, wherein the bead is formed of a ferromagnetic metal core and a polymeric coating.

(72) ~~69~~. (New)The method of claim ~~66~~-69, having from about 100 to about 1,000 fluorescing nucleotide probe molecules attached to the surface area of the bead.

(73) ~~70~~. (New)The method of claim ~~66~~-69, wherein the level of label expression is evaluated using a flow cytometer.

(74) ~~71~~. (New)The method of claim ~~66~~-69, wherein the second level is significantly lower than the first level and said second levels of fluorescence approach zero and/or about background levels.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: The claims are drawn to a reiterative process of mixing a known number of substrate-immobilized naturally fluorescing probes with a target sample. Hybridization between a target and a probe quenches fluorescence from the probe. The step of mixing target sample and probes is reiterated until fluorescence is no longer quenched whereby the target is quantified by determining the number of probes quenched. The prior art does not teach or reasonably suggest the claimed reiterative process.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571) 272-0782. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

BJ Forman, Ph.D.
Primary Examiner
Art Unit: 1634
July 29, 2004